IRW/B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Robert W. Allington, et al.	)	Patent Application
Serial No:	10/082,710	)	Examiner: D. Rogers
Filed :	February 25, 2002	)	Group Art Unit: 2856
For :	LIQUID CHROMATOGRAPHIC METHOD AND SYSTEM	)	Date: December 13, 2004

PETITION

Honorable Commissioner
of Patents and Trademarks
Mail Stop Petitions
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby petitions the Commissioner of Patents and Trademarks to credit the $43.00 charged on the May 28, 2004, monthly statement of deposit account 03-0778 (attachment A) for the above-identified patent application. The monthly statement of deposit account 03-0778 indicates that the $43.00 was charged to deposit account 03-0778 on May 7, 2004, to cover the cost of filing an amendment with independent claims in excess of three, claiming small entity status.

BACKGROUND

On February 25, 2002, applicant filed a U.S. utility patent application with 27 total claims and 6 independent claims, claiming small entity status. Enclosed herewith is a copy of the Fee Transmittal Form (attachment B), the claims (attachment C) as originally filed and the cancelled check for $599.00 (attachment D) of which $189.00 was for 27 total

claims and 6 independent claims. As you can see from attachment C, claims 1, 9, 13, 16, 17, and 25 were independent claims. Therefore, the appropriate fee was included with the patent application for 27 total claims and 6 independent claims.

A nonfinal Office action was mailed by the U.S. Patent Office on March 14, 2003. In response to the nonfinal Office action, applicant filed an amendment September 6, 2003, claiming small entity status. A copy of the claims filed September 6, 2003 (attachment E) is enclosed herewith. As you can see from attachment E, claims 2, 3, 5, 6, 8, 11, and 12 were original, claims 1, 4, 7, 9, and 10 were amended, claims13 - 27 were cancelled, and claims 28, 29 and 30 were added. Consequently, 15 total claims remained in the application with two claims being independent. Since we had previously paid for 27 total claims and 6 independent claims, there were no fees due with the amendment filed September 6, 2003.

A second nonfinal Office action was mailed by the U.S. Patent Office on January 28, 2004. In response to the nonfinal Office action, applicant filed an amendment April 26, 2004, claiming small entity status (attachment F). As you can see from attachment F, claims 1, 2, 4, 6, 7, 8, 9, 10, 12, 28, and 29 were original or previously presented, claims 3, 5, 11, and 30 were amended and claims 13 - 27 were cancelled. Consequently, 15 total claims remained in the application with six claims being independent. Since we had already previously paid for 27 claims and 6 independent claims, there were no fees due with the amendment filed April 26, 2004.

In addition, enclosed is a copy of 37 CFR 1.26(b) Rules Of Practice (attachment G) which states a request for refund must be filed within two years from the date of the deposit account statement indicating such charge.

REQUEST

Since the applicant paid the correct fee required as a small entity for 27 total claims and 6 independent claims at the time of filing the patent application and there were no additional fees required with each amendment filed thereafter, as indicated by attachments B - F and in accordance with the enclosed Rules Of Practice (attachment G), applicant hereby petitions the U.S. Patent Office to credit deposit account 03-0778 the $43.00 which was incorrectly debited to the account on May 28, 2004.

Respectfully submitted,

Vincent L. Carney
Attorney for the Applicant
Reg. No. 20,688
P.O. Box 80836
Lincoln, NE 68501-0836
(402) 465-8808

-- Our Ref: 18-587-9-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Robert W. Allington, et al.	)	Patent Application
Serial No:	10/082,710	)	Examiner: D. Rogers
Filed :	February 25, 2002	)	Group Art Unit: 2856
For :	LIQUID CHROMATOGRAPHIC METHOD AND SYSTEM	)	Date: December 13, 2004

CERTIFICATE OF MAILING

Commissioner of Patents
and Trademarks
Mail Stop Petitions
P.O. Box 1450
Alexandria, VA 22313-1450
Sir:

I hereby certify that this petition is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner of Patents and Trademarks, Mail Stop Petitions, P.O. Box 1450, Alexandria, VA 22313-1450 on December 13, 2004.

Vincent L. Carney

Vincent L. Carney
Attorney for the Applicant
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P.O. Box 80836
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(402) 465-8808

-- Our Ref: 18-587-9-1

UNITED STATES PATENT AND TRADEMARK OFFICE

ATTACHMENT A

MONTHLY STATEMENT OF DEPOSIT ACCOUNT

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VINCENT L CARNEY
JOLENE A RYAN
P.O. BOX 80836

LINCOLN NE 68501-0836

FINA

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030778
Date
5-28-04
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PLEASE SEND REMITTANCES TO:
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DATE POSTED MO.	DAY	YR.	CONTROL NO.	DESCRIPTION (Serial, Patent, TM, Order)	DOCKET NO.	FEE CODE	CHARGES/ CREDITS	BALANCE
5	3	04	254	US20030032204	18013BICCN	8008	200.00	2999.80
5	7	04	6	10082710	18-587-9-1	2201	43.00	2956.80
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5	7	04	45	6719485	590/SP	8001	3.00	2938.80
5	7	04	46	6719009	590/SP	8001	3.00	2935.80
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5	7	04	48	D488486	590/SP	8001	3.00	2929.80
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5	7	04	51	6727104	590/SP	8001	3.00	2923.80
5	7	04	52	6726237	590/SP	8001	3.00	2920.80
5	7	04	53	6726132	590/SP	8001	3.00	2917.80
5	7	04	54	6725618	590/SP	8001	3.00	2914.80
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5	7	04	56	6725529	590/SP	8001	3.00	2908.80
5	7	04	57	D489114	590/SP	8001	3.00	2905.80
5	7	04	58	D489113	590/SP	8001	3.00	2902.80
5	7	04	59	6723563	590/SP	8001	3.00	2899.80
5	7	04	60	6722681	590/SP	8001	3.00	2896.80
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5	7	04	65	6727810	638-0-8E/SP	8001	6.00	2869.80
5	11	04	60	6732082	590/SP	8001	3.00	2866.80
5	11	04	61	6731491	590/SP	8001	3.00	2863.80
5	11	04	62	6729961	590/SP	8001	3.00	2860.80
5	11	04	63	6729826	590/SP	8001	3.00	2857.80
5	11	04	64	6729114	590/SP	8001	3.00	2854.80
5	11	04	66	6730904	18-0-8AC/SP	8001	6.00	2848.80
5	12	04	67	2829331	709-4-2-1/CJS	8503	-15.00	2863.80
5	12	04	68	1161212		8501	3.00	2860.80
5	24	04	270	4843299	27-35-5-1/CCN	8008	200.00	2660.80

AN AMOUNT SUFFICIENT TO COVER ALL SERVICES REQUESTED MUST ALWAYS BE ON DEPOSIT	OPENING BALANCE	TOTAL CHARGES	TOTAL CREDITS	CLOSING BALANCE

MS020A (2/2003)

*** O.D. INDICATES OVERDRAWN

UNITED STATES PATENT AND TRADEMARK OFFICE

MONTHLY STATEMENT OF DEPOSIT ACCOUNT

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VINCENT L CARNEY
JOLENE A RYAN
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LINCOLN NE 68501-0836

FINA

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DATE POSTED MO.	DAY	YR.	CONTROL NO.	DESCRIPTION (Serial, Patent, TM, Order)	DOCKET NO.	FEE CODE	CHARGES/ CREDITS	BALANCE
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5	26	04	275	6736297	509/SP	8001	3.00	2257.80
5	26	04	276	6736279	509/SP	8001	3.00	2254.80
5	26	04	277	6735881	509/SP	8001	3.00	2251.80
5	26	04	278	6735879	509/SP	8001	3.00	2248.80
5	26	04	279	6733548	509/SP	8001	3.00	2245.80
5	26	04	280	D490134	509/SP	8001	3.00	2242.80
5	26	04	281	D490543	509/SP	8001	3.00	2239.80
5	26	04	282	D490493	509/SP	8001	3.00	2236.80
5	26	04	283	6741353	509/SP	8001	3.00	2233.80
5	26	04	284	6741214	509/SP	8001	3.00	2230.80
5	26	04	285	6738139	509/SP	8001	3.00	2227.80
5	26	04	286	6737257	509/SP	8001	3.00	2224.80
5	26	04	287	6737022	509/SP	8001	3.00	2221.80
5	26	04	288	6736504	509/SP	8001	3.00	2218.80
5	26	04	289	6735851	18-0-8AC/SP	8001	6.00	2212.80
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5	26	04	294	6741084	18-0-8L/SP	8001	6.00	2188.80
5	26	04	295	6740241	18-0-8L/SP	8001	6.00	2182.80
5	26	04	296	D490583	18-438-4C-1/SP	8001	6.00	2176.80
5	26	04	297	D489857	18-438-4C-1/SP	8001	6.00	2170.80
5	26	04	298	D489856	18-438-4C-1/SP	8001	6.00	2164.80
5	26	04	299	6737023	18-0-8N/SP	8001	6.00	2158.80
5	27	04	9	09365013		9204	-55.00	2213.80

AN AMOUNT SUFFICIENT TO COVER ALL SERVICES REQUESTED MUST ALWAYS BE ON DEPOSIT	OPENING BALANCE	TOTAL CHARGES	TOTAL CREDITS	CLOSING BALANCE
	3199.80	1056.00	70.00	2213.80

MS020A (2/2003)

*** O.D. INDICATES OVERDRAWN

ATTACHMENT B

PTO/SB/17 (11-01)
Approved for use through 10/31/2002. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 599.00

Complete if Known	
Application Number	
Filing Date	
First Named Inventor	Robert W. Allington
Examiner Name	
Group Art Unit	1752
Attorney Docket No.	18-587-9-1

METHOD OF PAYMENT *(check all that apply)*

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number: 03-0778

Deposit Account Name: Vincent L. Carney

The Commissioner is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) during the pendency of this application

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	370
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1) ($) 370

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below	Fee Paid
Total Claims	27	-20** = 7	x	9	= 63
Independent Claims	6	- 3** = 3	x	42	= 126
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	84	202	42	Independent claims in excess of 3
104	280	204	140	Multiple dependent claim, if not paid
109	84	209	42	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 189.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	40
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 40

SUBMITTED BY				Complete *(if applicable)*	
Name (Print/Type)	Vincent L. Carney	Registration No. (Attorney/Agent)	20,688	Telephone	402-465-8808
Signature	Vincent L. Carney			Date	February 25, 2002

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

What is claimed is:

1. A liquid chromatographic system including:

at least one pumping system;

a plurality of flow cells;

a plurality of photodetectors;

said pumping system supplying solvent to at least one flow cell of said plurality of flow cells

a plurality of light sources;

each of at least some light sources of said plurality of light source applying light to a corresponding one said plurality of photodetectors after the light has passed through a corresponding one of said flow cells;

a time division multiplex circuit having a plurality of input means and a multiplex cycle time during which it multiplexes at least some of said plurality of input means whereby it conducts signals from each individual input means of said some of said plurality of input means for a stroke time; and

at least one circuit means arranged to receive energy from at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said stroke time.

2. A liquid chromatographic system in accordance with claim 1 in which said at least one circuit means is a non-switching circuit with low bandwidth, whereby sensitivity is improved.

3. A liquid chromatographic system in accordance with claim 2 in which said at least one circuit means has a fast rise time, flat topped response to an impulse and a pulse duration that lasts at least a substantial portion of the multiplex cycle time.

4. A liquid chromatographic system in accordance with claim 2 further including:

a first light guide receiving light from said light source and transmitting it to said at least one photodetector; and

a second light guide positioned to receive light from said first light guide and transmit it to a second photodetector;

said first and second light guides having their ends positioned within a flow cell adjacent to each other so that light passes from an end of said first light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute.

5. A liquid chromatographic system according to claim 4 in which said ends of said first and second light guides are spaced in the region of .02 to 5 millimeters apart.

6. A liquid chromatographic system according to claim 5 in which said light source includes:

at least one lamp;

means for focusing light from said at least one lamp onto a diffraction grating;

means for focusing light from the diffraction grating onto an opening; and

at least some of a plurality of light guides having an end in said opening whereby said at least some of said plurality of light guides receive light from said diffraction grating.

7. A liquid chromatographic system in accordance with claim 6 including at least one column wherein:

said at least one pumping system comprises a plurality of pumps;

said at least one column comprising a plurality of columns, each of said plurality of columns communicates with a different one of said plurality of pumps;

said at least one photodetector comprises a plurality of photodetectors, each of said plurality of photodetectors communicating with a different one of said plurality of columns, whereby each of said detectors detects a signal; and

said photodetectors including a photodiode positioned against one end of said second light guide.

8. A liquid chromatographic system in accordance with claim 7 in which each of said light guides is in intimate contact with a different photodiode.

9. A method of performing chromatography comprising the steps of:

pumping solvent through a plurality of flow cells;

transmiting light through at least one of said plurality of flow cells to a plurality to a corresponding one of a plurality of photodetectors;

multiplexing signals from at least a some of said plurality of photodetectors during a multiplex cycle time during at least one of said plurality of a plurality of signals from at

least one of said plurality of photodetectors being conducted to an output terminal occurring during one stroke portion of said multiplex cycle time; and

transmitting energy from said at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said stroke time.

10. A method of performing liquid chromatography in accordance with claim 9 further comprising the steps of:

transmitting light through said at least one photodetector from a first light guide;

receiving light passing through solute from said first light guide to a second light guide; and

transmitting light received by said second light guide to a second photodetector, wherein said first and second light guides have their ends positioned within a flow cell adjacent to each other so that light passes from an end of one light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute.

11. A method according to claim 10 in which said step of transmitting light includes the substeps of:

transmitting light from at least one lamp;

focusing light from said at least one lamp onto a diffraction grating; and

focusing light from the diffraction grating onto an opening wherein at least some of a plurality of light guides having an end in said opening whereby said at least some of said plurality of light guides receive light from said diffraction grating.

12. A method in accordance with claim 11 further including the step of detecting light with photodiodes positioned against one end of said second light guide.

13. A multiplex system for measuring a plurality of sources, comprising:

a plurality of sources of signals representing measured values;

a time division multiplex circuit having a plurality of input means at least some of which a arranged to receive signals from a corresponding one of said source of signals in said plurality of sources of signals representing measured values;

said time division multiplex circuit having a multiplex cycle time during which it multiplexes at least some of said plurality of input means whereby it conducts signals from each individual input means of said some of said plurality of input means for a stroke time; and

at least one circuit means arranged to receive energy from at least one of said sources of signals for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said stroke time.

14. A multiplex system in accordance with claim 13 in which said atleast one circuit means is a non-switching circuit with low bandwidth, whereby sensitivity is improved.

15 A liquid chromatographic system in accordance with claim 14 in which said at least one circuit means has a fast rise time, flat topped response to an impulse and a pulse duration that lasts at least a substantial portion of the multiplex cycle time.

16. A method of multiplexing signal sources, comprising the steps of:

multiplexing signals from at least a some of said plurality of signal sources during a multiplex cycle time during at least one of said plurality of a plurality of signals from at least one of said plurality of signal sources being conducted to an output terminal occurring during one stroke portion of said multiplex cycle time; and

transmitting energy from said at least one of said signal sources for a substantial portion of said multiplex cycle time and applying it to a corresponding one of said plurality of multiplex circuit input means during said stroke time.

17. A multiple channel liquid chromatographic system, comprising :

at least two syringe pumps for pumping solvent in said system wherein each of said at least two syringe pumps includes a piston and a cylinder;

a moving frame attached to at least two pistons of said two syringe pumps, wherein movement of each of the pistons with respect to a corresponding cylinder of said syringe pumps is carried out by the moving frame.

at least one time-proportioning electronically controllable liquid gradient switching valve;

a first mixing means;

a second mixing means;

said second mixing means being a pump cylinder with an offset inlet that forms eddy currents in the pump cylinder;

the first mixing means residing in a fluid flow path between the at least one time-proportioning electronically controllable liquid gradient switching valve and the said at least one of said at least two syringe pumps inlet and the second mixing means resides in the cylinder of the at least one of said at least two syringe pumps downstream of the inlet of the at least one time-proportioning electronically controllable liquid gradient switching valve; wherein the fluid flow path between the said at least one time-proportioning electronically controllable liquid gradient switching valve and the at least one of said at least two syringe pumps inlet is a flow passageway sized to produce formation of elongated streams of first and second solvents withmixing in the said passageway, which in combination with mixing caused by eddy currents in the pump cylinder makes each step of the gradient sufficiently flat and reproducible for a desired set of chromatographic separation processes.

18. A multiple channel liquid chromatographic system in accordance with claim 17 wherein the flow passageway has a volume less than one-tenth that of a single charge, wherein the flow passageway has a diameter of less than one-half the diameter of the pump cylinder; said flow producing good axial mixing and poor transverse mixing on a small scale charge and an outlet of said flow passageway injecting into the pump cylinder where the flow becomes turbulent flow thus enhancing transverse mixing and axial mixing on a large scale.

19. A multiple channel liquid chromatographic system in accordance with claim 18 wherein the flow passageway has a volume of at least one-tenth that of a single charge; said flow producing good axial mixing on a small scale and an outlet of said flow passageway injecting into the pump cylinder where the flow undergoes enhanced transverse mixing.

20. A multiple channel liquid chromatographic system in accordance with claim 18 wherein the flow passageway has a volume of at least one-tenth that of a single charge wherein the distance required for further transverse mixing is small; said flow producing good axial mixing and an outlet of said flow passageway injecting into the larger diameter pump cylinder where the flow becomes turbulent and undergoes transverse mixing and axial mixing.

21. A multiple channel liquid chromatographic system in accordance with claim 19 in which said at least one time-proportioning electronically controllable liquid gradient switching valve is arranged to produce consecutive pulses of liquid from at least one of said at least two sources of liquid to a refill inlet at a fluid velocity high enough to induce turbulent mixing in a space between a head of said piston and that part of the cylinder not occluded by the piston.

22. A multiple channel liquid chromatographic system in accordance with claim 21 further including means for synchronizing the at least one time-proportioning electronically controllable liquid gradient switching valve with refill movement of said piston so that one

charge of each desired fluid at a desired volume proportion is deposited in each pump and mixed to form at least one part of a step of a stepped gradient.

23. A multiple channel liquid chromatographic system in accordance with claim 22 further including:

first means for shutting off fluid flow between the said pump and said at least one time-proportioning electronically controllable liquid gradient switching valve during delivery;

second means for synchronizing the at least one time-proportioning electronically controllable liquid gradient switching valve with refill movement of said piston so that one charge of each desired fluid at a desired volume proportion is deposited in each pump and mixed to form at least one part of a step of a stepped gradient; and

control means for repeating the said first and second means at consecutively different or same fluid proportions to produce an entire stepped gradient.

24. A multiple channel liquid chromatographic system in accordance with claim 23 wherein at least two equal charges of each of two fluids are alternately delivered to an inlet of at least one of said at least two syringe pumps; said two fluids being mixed in the at least one time-proportioning electronically controllable liquid gradient switching valve during a rapid, energetic refill, and then delivered as a single step of a step gradient to the rest of said system in the order of sample injection device, chromatographic column, and fraction collector.

25. A method of performing liquid chromatography comprising:

drawing at least first and second fluid solvent into a plurality of pumps from at least a corresponding first and second source of fluid;

pumping said fluid from said plurality of pumps;

said step of pumping said fluid including the step of mixing said at least first and second fluids in said pumps whereby a gradient is formed;

said step of mixing including the step of mixing said at least first and second fluids prior to pumping said at least first and second fluids from said pumps;

said step of mixing further including the step of drawing said first and second fluids through at least one flow path, wherein the flow path is shaped to produce good axial mixing and poor transverse mixing by stretching out flow streams of each of said first and second fluids; and

injecting said fluids into a pump cylinder where it undergoes enhanced transverse mixing and axial mixing from eddy currents in the pump cylinder.

26. The method of claim 25 wherein the enhanced mixing occurs because the axially-mixed liquid entering the pump facilitates further mixing because the distance required for further transverse mixing is small.

27. A method according to claim 26 wherein the enhanced mixing occurs because the tendency of some pairs of liquids not to mix at their interfaces decreases because this interface is already degraded at or before the outlet of flow means.

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IN THE CLAIMS:

1. (currently amended) A liquid chromatographic system including:

at least one pumping system;

a plurality of flow cells;

a plurality of photodetectors;

said pumping system supplying solvent to at least one flow cell of said plurality of flow cells;

~~a plurality of~~ at least one light ~~sources~~ source;

~~each of~~ said at least one ~~some~~ light ~~sources of said plurality of light~~ source applying light to ~~a corresponding~~ at least one of said plurality of photodetectors after the light has passed through a corresponding one of said flow cells;

a time division multiplex circuit having a plurality of input means and a multiplex cycle time during which it multiplexes each of at least some of said plurality of input means for a time division whereby ~~it~~ the time division multiplex circuit conducts signals from each individual input means of said some of said plurality of input means for a ~~stroke~~ time division; and

at least one circuit means arranged to receive energy from at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said ~~stroke~~ time division.

2. (original) A liquid chromatographic system in accordance with claim 1 in which said at least one circuit means is a non-switching circuit with low bandwidth, whereby sensitivity is improved.

3. (original) A liquid chromatographic system in accordance with claim 2 in which said at least one circuit means has a fast rise time, flat topped response to an impulse and a pulse duration that lasts at least a substantial portion of the multiplex cycle time.

4. (currently amended) A liquid chromatographic system in accordance with claim 2 further including:

~~a~~ at least one of a plurality of first light ~~guide~~ guides receiving light from said light source and transmitting ~~it~~ the light to said at least one ~~photodetector~~ flow cell; and

~~a~~ at least one of a plurality of second light ~~guide~~ guides positioned to receive light from said at least one of a plurality of first light ~~guide~~ guides and transmit ~~it~~ the light to ~~a~~ at least one of said plurality of ~~second photodetector~~ photodetectors;

said at least one of a pluraltiy of first and one of a plurality of second light guides having ~~their~~ a corresponding one of its ends positioned within a flow cell adjacent to each other so that light passes from an end of said first light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute.

5. (original) A liquid chromatographic system according to claim 4 in which said ends of said first and second light guides are spaced in the region of .02 to 5 millimeters apart.

6. (original) A liquid chromatographic system according to claim 5 in which said light source includes:

at least one lamp;

means for focusing light from said at least one lamp onto a diffraction grating;

means for focusing light from the diffraction grating onto an opening; and

at least some of a plurality of light guides having an end in said opening whereby said at least some of said plurality of light guides receive light from said diffraction grating.

7. (currently amended) A liquid chromatographic system in accordance with claim 6 including at least one column wherein:

said at least one pumping system comprises a plurality of pumps;

said at least one column ~~comprising~~ comprises a plurality of columns, each of said plurality of columns communicates with a different one of said plurality of pumps;

said at least one photodetector comprises a plurality of photodetectors, each of said plurality of photodetectors communicating with a different one of said plurality of columns, whereby each of said ~~detectors~~ photodetectors detects a signal; and

each of said photodetectors ~~including~~ includes a corresponding photodiode positioned against one end of said second light guide.

8. (original) A liquid chromatographic system in accordance with claim 7 in which each of said light guides is in intimate contact with a different photodiode.

9. (currently amended) A method of performing chromatography comprising the steps of:

pumping solvent through a plurality of flow cells;

transmiting light through at least one of said plurality of flow cells to ~~a plurality to~~ a corresponding one of a plurality of photodetectors;

multiplexing signals from at least ~~a~~ some of said plurality of photodetectors during a multiplex cycle time ~~during at least one of said plurality of a plurality of signals~~ from at least one of said plurality of photodetectors ~~being conducted~~ to an output terminal ~~occurring~~ during one stroke portion of said multiplex cycle time; and

transmitting energy from said at least one of said photodetectors for a substantial portion of said multiplex cycle time ~~and apply it~~ to a corresponding one of ~~said~~ a plurality of multiplex circuit input means connected between a corresponding one of said photodectors and a multiplex circuit that multiplexes the signals from at least some of said plurality of photodetectors during said stroke time, wherein said energy from said multiplex circuit input means is transmitted to said output terminal during said stroke time.

10. (currently amended) A method of performing liquid chromatography in accordance with claim 9 further comprising the steps of:

transmitting light through said at least one photodetector from a first light guide;

receiving light passing through solute from said first light guide ~~to~~ by a second light guide; and

transmitting light received by said second light guide to a second photodetector, wherein said first and second light guides have their ends positioned within a flow cell adjacent to each other so that light passes from an end of one light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute.

11. (original) A method according to claim 10 in which said step of transmitting light includes the substeps of:

transmitting light from at least one lamp;

focusing light from said at least one lamp onto a diffraction grating; and

focusing light from the diffraction grating onto an opening wherein at least some of a plurality of light guides having an end in said opening whereby said at least some of said plurality of light guides receive light from said diffraction grating.

12. (original) A method in accordance with claim 11 further including the step of detecting light with photodiodes positioned against one end of said second light guide.

Claims 13-27 (cancelled).

28. (new) A liquid chromatographic system according to claim 4 in which said flow cell is sufficiently large to permit fluid to flow around said first and second light guides.

29. (new) A liquid chromatographic system according to claim 28 in which said flow cell is sufficiently large for preparatory chromatography.

30. (new) A liquid chromatographic system according to claim 4 in which said ends of said first and second light guides are spaced sufficiently close to block bubbles from passing between them.

AMENDMENTS TO THE CLAIMS:

1. (previously presented) A liquid chromatographic system including:

at least one pumping system;

a plurality of flow cells;

a plurality of photodetectors;

said pumping system supplying solvent to at least one flow cell of said plurality of flow cells;

at least one light source;

said at least one light source applying light to at least one of said plurality of photodetectors after the light has passed through a corresponding one of said flow cells;

a time division multiplex circuit having a plurality of input means and a multiplex cycle time during which it multiplexes each of at least some of said plurality of input means for a time division whereby the time division multiplex circuit conducts signals from each individual input means of said some of said plurality of input means for a time division; and

at least one circuit means arranged to receive energy from at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said time division.

2. (original) A liquid chromatographic system in accordance with claim 1 in which said at least one circuit means is a non-switching circuit with low bandwidth, whereby sensitivity is improved.

3. (currently amended) A liquid chromatographic system including:

at least one pumping system;

a plurality of flow cells;

a plurality of photodetectors;

said pumping system supplying solvent to at least one flow cell of said plurality of flow cells;

at least one light source;

said at least one light source applying light to at least one of said plurality of photodetectors after the light has passed through a corresponding one of said flow cells;

a time division multiplex circuit having a plurality of input means and a multiplex cycle time during which it multiplexes each of at least some of said plurality of input means for a time division whereby the time division multiplex circuit conducts signals from each individual input means of said some of said plurality of input means for a time division; and

at least one circuit means arranged to receive energy from at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said time division;

said at least one circuit means being a non-switching circuit with low bandwidth, whereby sensitivity is improved;

~~in accordance with claim 2 in which~~ said at least one circuit means ~~has~~ having a fast rise time, flat topped response to an impulse and a pulse duration that lasts at least a substantial portion of the multiplex cycle time.

4. (previously presented) A liquid chromatographic system in accordance with claim 2 further including:

at least one of a plurality of first light guides receiving light from said light source and transmitting the light to said at least one flow cell; and

at least one of a plurality of second light guides positioned to receive light from said at least one of a plurality of first light guides and transmit the light to at least one of said plurality of photodetectors;

said at least one of a pluraltiy of first and one of a plurality of second light guides having a corresponding one of its ends positioned within a flow cell adjacent to each other so that light passes from an end of said first light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute.

5. (currently amended) A liquid chromatographic system <u>including:</u>

<u>at least one pumping system;</u>

<u>a plurality of flow cells;</u>

<u>a plurality of photodetectors;</u>

<u>said pumping system supplying solvent to at least one flow cell of said plurality of flow cells;</u>

<u>at least one light source;</u>

<u>said at least one light source applying light to at least one of said plurality of photodetectors after the light has passed through a corresponding one of said flow cells;</u>

a time division multiplex circuit having a plurality of input means and a multiplex cycle time during which it multiplexes each of at least some of said plurality of input means for a time division whereby the time division multiplex circuit conducts signals from each individual input means of said some of said plurality of input means for a time division;

at least one circuit means arranged to receive energy from at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said time division;

said at least one circuit means being a non-switching circuit with low bandwidth, whereby sensitivity is improved;

at least one of a plurality of first light guides receiving light from said light source and transmitting the light to said at least one flow cell;

at least one of a plurality of second light guides positioned to receive light from said at least one of a plurality of first light guides and transmit the light to at least one of said plurality of photodetectors;

said at least one of a pluraltiy of first and one of a plurality of second light guides having a corresponding one of its ends positioned within a flow cell adjacent to each other so that light passes from an end of said first light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute;

~~according to claim 4 in which~~ said ends of said first and second light guides ~~are~~ being spaced in the region of .02 to 5 millimeters apart.

6. (original) A liquid chromatographic system according to claim 5 in which said light source includes:

at least one lamp;

means for focusing light from said at least one lamp onto a diffraction grating;

means for focusing light from the diffraction grating onto an opening; and

at least some of a plurality of light guides having an end in said opening whereby said at least some of said plurality of light guides receive light from said diffraction grating.

7. (previously presented) A liquid chromatographic system in accordance with claim 6 including at least one column wherein:

said at least one pumping system comprises a plurality of pumps;

said at least one column comprises a plurality of columns, each of said plurality of columns communicates with a different one of said plurality of pumps;

said at least one photodetector comprises a plurality of photodetectors, each of said plurality of photodetectors communicating with a different one of said plurality of columns, whereby each of said photodetectors detects a signal; and

each of said photodetectors includes a corresponding photodiode positioned against one end of said second light guide.

8. (original) A liquid chromatographic system in accordance with claim 7 in which each of said light guides is in intimate contact with a different photodiode.

9. (previously presented) A method of performing chromatography comprising the steps of:

pumping solvent through a plurality of flow cells;

transmitting light through at least one of said plurality of flow cells to a corresponding one of a plurality of photodetectors;

multiplexing signals from at least some of said plurality of photodetectors during a multiplex cycle time from at least one of said plurality of photodetectors- to an output terminal during one stroke portion of said multiplex cycle time; and

transmitting energy from said at least one of said photodetectors for a substantial portion of said multiplex cycle time to a corresponding one of a plurality of multiplex circuit input means connected between a corresponding one of said photodectors and a multiplex circuit that multiplexes the signals from at least some of said plurality of photodetectors during said stroke time, wherein said energy from said multiplex circuit input means is transmitted to said output terminal during said stroke time.

10. (previously presented) A method of performing liquid chromatography in accordance with claim 9 further comprising the steps of:

transmitting light through said at least one photodetector from a first light guide;

receiving light passing through solute from said first light guide by a second light guide; and

transmitting light received by said second light guide to a second photodetector, wherein said first and second light guides have their ends positioned within a flow cell

adjacent to each other so that light passes from an end of one light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute.

11. (currently amended) A method of performing chromatography comprising the steps of:

pumping solvent through a plurality of flow cells;

transmiting light through at least one of said plurality of flow cells to a corresponding one of a plurality of photodetectors;

multiplexing signals from at least some of said plurality of photodetectors during a multiplex cycle time from at least one of said plurality of photodetectors to an output terminal during one stroke portion of said multiplex cycle time; and

transmitting energy from said at least one of said photodetectors for a substantial portion of said multiplex cycle time to a corresponding one of a plurality of multiplex circuit input means connected between a corresponding one of said photodectors and a multiplex circuit that multiplexes the signals from at least some of said plurality of photodetectors during said stroke time, wherein said energy from said multiplex circuit input means is transmitted to said output terminal during said stroke time;

transmitting light through said at least one photodetector from a first light guide;

receiving light passing through solute from said first light guide by a second light guide;

transmitting light received by said second light guide to a second photodetector, wherein said first and second light guides have their ends positioned within a flow cell adjacent to each other so that light passes from an end of one light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute

~~according to claim 10 in which~~ said step of transmitting light ~~includes~~ including the substeps of:

transmitting light from at least one lamp;

focusing light from said at least one lamp onto a diffraction grating; and

focusing light from the diffraction grating onto an opening wherein at least some of a plurality of light guides having an end in said opening whereby said at least some of said plurality of light guides receive light from said diffraction grating.

12. (original) A method in accordance with claim 11 further including the step of detecting light with photodiodes positioned against one end of said second light guide.

Claims 13-27 (cancelled).

28. (previously presented) A liquid chromatographic system according to claim 4 in which said flow cell is sufficiently large to permit fluid to flow around said first and second light guides.

29. (previously presented) A liquid chromatographic system according to claim 28 in which said flow cell is sufficiently large for preparatory chromatography.

30. (currently amended) A liquid chromatographic system including:

at least one pumping system;

a plurality of flow cells;

a plurality of photodetectors;

said pumping system supplying solvent to at least one flow cell of said plurality of flow cells;

at least one light source;

said at least one light source applying light to at least one of said plurality of photodetectors after the light has passed through a corresponding one of said flow cells;

a time division multiplex circuit having a plurality of input means and a multiplex cycle time during which it multiplexes each of at least some of said plurality of input means for a time division whereby the time division multiplex circuit conducts signals from each individual input means of said some of said plurality of input means for a time division;

at least one circuit means arranged to receive energy from at least one of said photodetectors for a substantial portion of said multiplex cycle time and apply it to a corresponding one of said plurality of multiplex circuit input means during said time division;

said at least one circuit means being a non-switching circuit with low bandwidth, whereby sensitivity is improved;

at least one of a plurality of first light guides receiving light from said light source and transmitting the light to said at least one flow cell;

at least one of a plurality of second light guides positioned to receive light from said at least one of a plurality of first light guides and transmit the light to at least one of said plurality of photodetectors;

said at least one of a pluraltiy of first and one of a plurality of second light guides having a corresponding one of its ends positioned within a flow cell adjacent to each other so that light passes from an end of said first light guide through solute in said flow cell and into an end of the second light guide, whereby light is diminished within said flow cell by absorbance by solute;

~~according to claim 4 in which~~ said ends of said first and second light guides ~~are~~ being spaced sufficiently close to block bubbles from passing between them.